

## DMS - 8140

### PENETRATING CONCRETE SURFACE TREATMENT

**EFFECTIVE DATE: OCTOBER 2014**

**8140.1. Description.** This Specification governs the materials, composition, quality, sampling, testing, and pre-qualification of silane penetrating concrete surface treatment.

**8140.2. Units of Measurements.** The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.

**8140.3. Material Producer List.** The Materials and Pavements Section of the Construction Division (CST/M&P) maintains the Material Producer List (MPL) of all materials conforming to the requirements of this Specification. Materials appearing on the MPL, entitled "[Penetrating Concrete Surface Treatments](#)," require no further testing unless deemed necessary by the Project Engineer or CST/M&P.

**8140.4. Bidders' and Suppliers' Requirements.** The Department will only purchase or allow on projects those products listed by manufacturer and product code or designation shown on the MPL.

**8140.5. Pre-Qualification Procedure.**

**A. Pre-Qualification Request.** Submit a request for evaluation to the Texas Department of Transportation, Construction Division, Materials and Pavements Section (CP-51), 9500 North Lake Creek Parkway, Austin, Texas 78717.

Include the following information:

- producer name;
- physical and mailing addresses;
- contact person, telephone number, and email address;
- safety data sheet (SDS) that complies with OSHA Hazard Communication Standard 29 CFR 1910.1200;
- product data sheet;
- application data sheet; and
- research or tests reports showing product's suitability as a penetrating concrete sealant.

**B. Pre-Qualification Sample.** After reviewing the pre-qualification request, CST/M&P will contact the producer to request a pre-qualification sample.

Tex-736-I describes the sampling procedure.

**C. Evaluation.** CST/M&P will evaluate the pre-qualification sample in accordance with the methods listed in Article 8140.6 and will notify the producer after completion of material evaluation.

**1. Qualification.** CST/M&P will list materials meeting the requirements of this Specification on the MPL.

Report any changes in formulation to CST/M&P. The Department will evaluate one reformulation per year at no cost to the producer. The Department reserves the right to conduct any tests deemed necessary to identify a qualified material and to determine if there has been a change in formulation. Detected changes not reported to the Department may be grounds for removal from the MPL.

**2. Failure.** Producers not qualified under this Specification may not furnish materials for Department projects and must show evidence of correction of all deficiencies before reconsideration for qualification.

The Department normally bears the costs of sampling and testing; however, the producer will bear the costs associated with materials failing to conform to the requirements of this Specification. The Director of CST/M&P will assess this cost at the time of testing, and amounts due will be billed to the producer.

**D. Periodic Evaluation.** The Department reserves the right to perform random audits of test reports and to conduct random sampling and testing to evaluate the performance of materials. In case of variance, the Department's tests will govern. Department representatives may sample material from the manufacturing plant and the project site. Failure to comply with the requirements of this Specification may be cause for removal from the MPL.

**E. Disqualification.** Causes for disqualification include, but are not limited to:

- falsification of documentation,
- failure to report formulation changes,
- failure to meet the requirements of this Specification as a result of periodic evaluation,
- product does not perform as required in storage and use,
- product does not meet specified shelf life, or
- producer has unpaid charges for failing samples.

CST/M&P will remove disqualified producers from the MPL and will not allow submission of material for re-qualification for 6 mo., at the discretion of the Department.

**F. Re-Qualification.** Once the disqualification period established by CST/M&P has elapsed, producers disqualified and removed from the MPL may begin the re-qualification process by submitting a request in accordance with Section 8140.5.A, including additional documentation identifying the cause of the problem and corrective action taken. The re-qualification process will then follow all subsequent sections of Article 8140.5.

The disqualified producer will bear the cost associated with re-qualification. The Director of CST/M&P will assess this cost at the time of re-evaluation.

#### 8140.6. Material Requirements.

- A. General Requirements.** The material must be a flowable, penetrating solution capable of application by spray or roller.

The applied and cured material must not form a film or otherwise build up on the surface of the treated concrete.

The material must not contain methyltrimethoxysilane (MTMS).

Performance must not be adversely affected when applied to concrete with a surface temperature between 40 and 110°F.

The penetrating sealer solution must be tinted with a fugitive dye to enable the solution to be visible on the treated surface to the unaided eye for at least 5 hours after application.

The fugitive dye must not be conspicuous more than 7 days after application when exposed to direct sunlight.

The penetrating solution must not permanently stain, discolor, or darken the concrete surface.

Water content must be less than 0.25%.

- B. Shelf Life.** The material must remain stable during storage in unopened containers for a minimum of 1 year such that, when sampled and tested, the stored material will conform to the requirements of this Specification.
- C. Water Repellency & Depth of Penetration.** Concrete specimens treated at a coverage rate of 125 sq. ft./gal. must absorb no more than 1.0% moisture and must exhibit a minimum depth of penetration of 0.25 in. when tested in accordance with Tex-897-B.
- D. Accelerated Weathering.** A mortar specimen treated at a coverage rate of 125 sq. ft./gal. must absorb no more than 2.25% moisture after 1,000 hr. of weatherometer exposure in accordance with Tex-898-B.
- E. Density (Gallon Weight).** The density (gallon weight), when measured in accordance with ASTM D 1475, must not vary more than  $\pm 0.05$  lb./gal. from that of the pre-qualification sample.
- F. Infrared Spectrum.** The infrared spectrum must match that of the pre-qualification sample when tested in accordance with Tex-888-B.
- G. Gas Chromatogram.** The gas chromatogram must match that of the pre-qualification sample.
- H. Nonvolatile Content.** The nonvolatile content must be a minimum of 20% when determined in accordance with ASTM D 5095 and must not vary by more than 1.0% less than the value obtained on the pre-qualification sample.

NOTE: Typically, silanes marketed as 40% nonvolatile will meet this requirement.

**8140.7. Archived Versions.** Archived versions are available.